# A STUDY OF THE DIFFERENCES IN ORAL READING BEHAVIOR BETWEEN DISABLED SECONDARY READERS AND DEVELOPMENTAL ELEMENTARY READERS

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TABLE OF CONTENTS

LIST OF TABLES

# CHAPTER I

## INTRODUCTION

Even as our society becomes more mechanized and dependent upon visual-oral devices for information and entertainment, the need to read print remains basic to the foundation of our political and social system. Even as the world becomes more technical, the ability to read to learn remains the key to success. In addition to this, compulsory attendance, the requirement of diplomas and degrees for jobs, day to day reading such as filling out forms and applications make life for those who have difficulty with reading or indeed classified as a non-reader a series of obstacles and dead-ends. For the non-reader, the requirement of diplomas and degrees for jobs with the commensurate myriad of forms and applications, make life a series of obstacles and dead-ends.

Hopefully, the student who has obtained secondary status has reached this level of education with the necessary reading skills needed to be able to read to learn. Unfortunately for many, this stage of their reading experience is still in the learning to read category. The reading deficiencies, having begun early in instruction, have accumulated to the point that what may have begun as simple inadequacies, lack of readiness, or "mis-teaching" have become a serious problem which often confounds diagnosis and indeed prescription and remediation.

No one diagnostic instrument is able to evaluate the total range of reading performance of the secondary disabled reader. Decisions on prescriptions for remediation should be based on diagnostic information taken from a variety of test data done by an experienced reading teacher. Important to this battery of diagnostic instruments is an examination of oral reading behaviors to determine the reading strategies used by the student.

## Need for the Study

Much of the research available in reading surrounds subjects in the elementary grades. Until recently, little research was produced using the secondary student as a focus of the investigation. Because of this, the secondary school population has received little attention in this area (House Subcommittee on Elementary, Secondary, and Vocational Education, 1977). This has led to a large school dropout rate before graduation of more than 700,000 per year (Schreiber, 1968).

In recent years the federal government has stepped in to enlarge the responsibilities of the schools to bolster the skills of the secondary underachievers. With this, a new interest in the problems of the secondary disabled reader was aroused. Although research in this area has grown since this time, specific information regarding the oral reading behaviors of secondary disabled readers still remains a premium. Because of this, the reading specialist dealing with the secondary disabled reader, must make decisions on diagnosis and prescriptions based on research findings developed from the elementary student. Can this information be used and made applicable to the secondary disabled reader? Is the reading performance of a person measurable on the

basis of age or on the basis of a band of performance? All of which lead to a bigger question, is reading a developmental process?

Purpose

This study has been designed to investigate the relationship between secondary disabled readers and elementary developmental readers whose instructional level is 4.0-6.0. In addition, a comparison between grammatical units and oral word recognition error types will be made. It is hoped that the study will provide an analysis of oral word recognition error patterns of secondary disabled readers and by so doing, contribute to the prescriptions of these errors.

## Statement of the Problem

This study is concerned with the difference at reading ranges 4.0-6.0 and 5.0-7.0 between the number of errors of each word recognition error type made by secondary disabled readers at Levels I and II and elementary developmental readers at Levels I and II. This study is also concerned with the difference at reading ranges 4.0-6.0 and 5.0-7.0 between the number of word recognition error types made on different parts of speech of the textual stimulus by secondary disabled readers at Levels I and II and elementary developmental readers at Levels I and II.

## Hypotheses

The first two hypotheses are concerned with the difference between the total number of each word recognition type between secondary disabled readers and developmental elementary readers first at Level I (91-94 per cent word recognition) and then at Level II (less than 91 per cent word recognition). Hypotheses III-XII are related to the

difference between the number of word recognition error types made on different parts of speech of the textual stimulus with each word recognition type examined in eleven parts of speech. The hypotheses to be tested are stated in the null form as:

Hypothesis 1: There is no difference at reading range 4.0-6.0 in the number of errors of each word recognition error type made by secondary disabled readers at Level I and elementary developmental readers at Level I. This hypothesis will be examined separately in the following error type categories: words aided, mispronunciation, substitution, omission and insertion.

Hypothesis 2: There is no difference at reading range 5.0-7.0 in the number of errors of each word recognition error type made by secondary disabled readers at Level II and elementary developmental readers at Level II. This hypothesis will be examined separately in the following error type categories: words aided, mispronunciation, substitution, omission and insertion.

Hypothesis 3: There is no difference at reading range 4.0-6.0 between the number of substitution errors on different parts of speech of the textual stimulus made by secondary disabled readers at Level I and elementary developmental readers at Level I. This hypothesis will be examined separately for each of the following parts of speech: verb, noun, pronoun, adjective, article, conjunction, adverb, preposition, interjection, contraction, and proper noun.

Hypothesis 4: There is no difference at reading range 5.0-7.0 between the number of substitution errors on different parts of speech of the textual stimulus made by secondary disabled readers at Level II and elementary developmental readers at Level II. This hypothesis will

be examined separately for each of the following parts of speech: verb, noun, pronoun, adjective, article, conjunction, adverb, preposition, interjection, contraction, and proper noun.

Hypothesis 5: There is no difference at reading range 4.0-6.0 between the number of insertion errors on different parts of speech of the textual stimulus made by secondary disabled readers at Level I and elementary developmental readers at Level I. This hypothesis will be examined separately for each of the following parts of speech: verb, noun, pronoun, adjective, article, conjunction, adverb, preposition, interjection, contraction, and proper noun.

Hypothesis 6: There is no difference at reading range 5.0-7.0 between the number of insertion errors on different parts of speech of the textual stimulus made by secondary disabled readers at Level II and elementary developmental readers at Level II. This hypothesis will be examined separately for each of the following parts of speech: verb, noun, pronoun, adjective, article, conjunction, adverb, preposition, interjection, contraction, and proper noun.

Hypothesis 7: There is no difference at reading range 4.0-6.0 between the number of mispronunciation errors on different parts of speech of the textual stimulus made by secondary disabled readers at Level I and elementary developmental readers at Level I. This hypothesis will be examined separately for each of the following parts of speech: verb, noun, pronoun, adjective, article, conjunction, adverb, preposition, interjection, contraction, and proper noun.

Hypothesis 8: There is no difference at reading range 5.0-7.0 between the number of mispronunciation errors on different parts of speech of the textual stimulus made by secondary disabled readers at

Level II and elementary developmental readers at Level II. This hypothesis will be examined separately for each of the following parts of speech: verb, noun, pronoun, adjective, article, conjunction, adverb, preposition, interjection, contraction, and proper noun.

Hypothesis 9: There is no difference at reading range 4.0-6.0 between the number of words aided on different parts of speech of the textual stimulus made by secondary readers at Level I and elementary developmental readers at Level I. This hypothesis will be examined separately for each of the following parts of speech: verb, noun, pronoun, adjective, article, conjunction, adverb, preposition, interjection, contraction, and proper noun.

Hypothesis 10: There is no difference at reading range 5.0-7.0 between the number of words aided on different parts of speech of the textual stimulus made by secondary disabled readers at Level II and elementary readers at Level II. This hypothesis will be examined separately for each of the following parts of speech: verb, noun, pronoun, adjective, article, conjunction, adverb, preposition, interjection, contraction, and proper noun.

Hypothesis 11: There is no difference at reading range 4.0-6.0 between the number of omission errors on different parts of speech of the textual stimulus made by secondary disabled readers at Level I and elementary developmental readers at Level I. This hypothesis will be examined separately for each of the following parts of speech: verb, noun, pronoun, adjective, article, conjunction, adverb, preposition, interjection, contraction, and proper noun.

Hypothesis 12: There is no difference at reading range 5.0-7.0 between the number of omission errors on different parts of speech of

the textual stimulus made by the secondary disabled readers at Level II and elementary developmental readers at Level II. This hypothesis will be examined separately for each of the following parts of speech: verb, noun, pronoun, adjective, article, conjunction, adverb, preposition, interjection, contraction, and proper noun.

## Definition of Terms

For clarity of purpose, following is a list of words that are used in the study with definitions indicative of their use:

Average or above average verbal intelligence is defined as having a verbal intelligence of 90 or above as measured by the Peabody Picture Vocabulary Test, Form A (Dunn, 1959).

Disabled secondary reader is a student whose reading is two years below the expected reading level (ERL) as determined by the Bond-Tinker formula (ERL=IQ/100 x years in school + 1) (Ekwall, 1978).

Elementary developmental reader is a student whose reading level was on grade level with a tolerance of plus or minus one year determining the outer limits of the range of performance.

Level I and Level II has been chosen in order to avoid the controversy over the percentages associated with levels of performance on the Individual Reading Inventory. Students in this study have been designated Levels I and II according to the following criteria: Level I in this study indicates the reading level at which the reader's word recognition accuracy falls between 91 and 94 per cent with at least 60 per cent accuracy in comprehension or the lowest reading level at which a reader attains a word recognition score above 90 per cent with at least 60 per cent accuracy in comprehension on the Standard Reading

Inventory, Form B (McCracken, 1966). Level II in this study indicates the reading level at which the reader's word recognition accuracy falls below 91 per cent or comprehension below 50 per cent accuracy on the Standard Reading Inventory, Form B (McCracken, 1966).

Word recognition errors in this study refer to the following types of errors:

a. Substitution - of an incorrect word for the textual stimulus.

b. Mispronunciation - of a word wholly or in part which includes any mispronunciation of the textual stimulus other than the substitution of some other word.

c. Words Aided - by the examiner after a five-second hesitation on the part of the reader.

d. Insertion - of a whole word.

e. Omission - of a whole word.

Behavioral errors refer to repetitions, self-corrections, and disregard for punctuation. For the purposes of this study, these will not be counted as errors and these will not be analyzed.

Parts of speech for the purposes of this study refer to the following categories: nouns, proper nouns, pronouns, verbs, adverbs, adjectives, prepositions, conjunctions, articles, interjections, and contractions. Infinitives are divided into two separate categories. The preposition of the infinitive is categorized as a preposition. The verb of the infinitive is categorized as a verb.

Extended oral passages refers to the series of passages each containing at least 500 words to be read orally. The content of these passages resembled basal reader materials. The 4.0 passage was taken from the Stories of Stuever (Stuever, 1969) which was graded and

organized especially for her study in 1969. Passages 5.0 and 6.0 were taken from stories used in a university reading clinic and revised by Johnson. The 7.0 story was taken from a basal reader and edited and graded by Johnson. The Dale-Chall Readability Formula was used to establish the revisions and appropriate readability of the passages.

## Limitations of the Study

This study is limited to disabled secondary students and elementary developmental students in public schools in Aurora, Colorado, and Lawton, Oklahoma. The oral reading tests used in this study are only a sample of the measure which might have been used. Other tests might yield different results.

## Assumptions

It is assumed that the use of oral reading errors to establish levels of reading performance is valid and that the number of errors made by a reader is indicative of the relative difficulty of the material for the reader. It is assumed that each word in a passage will permit a given reader to make any one of several types of errors and that the errors will be a random sample of reading behavior for an individual reader. It is assumed that the classification of reading errors is valid and that the particular analysis system to be used in this study is appropriate for this purpose.

# CHAPTER II

# REVIEW OF THE LITERATURE

Literature directly related to the comparison of word recognition errors of disabled secondary readers and developmental elementary readers is limited. This also holds true for the literature reporting differences made between the number of word recognition error type made on different parts of speech of the textual stimulus. A significant number of studies regarding areas that are peripheral to the areas of investigation in this study appears in the literature.

This review will be limited to the following areas: (1) analysis and comparison of word recognition errors of elementary and secondary/adult readers; and (2) linguistic and grammatical aspects of word recognition errors.

## Analysis and Comparison of Word Recognition Errors of Elementary and Secondary/Adult Readers

The analysis of oral reading behavior has been a standard procedure since the 1930's in the diagnosing and remediating of disabled readers (Spache, 1976). The basis for remediation were based on these recorded oral reading errors. It has been thought that through the observance of the oral reading of a student that the observer could gain insight to the reader's silent reading behavior as well.

Early reading professionals regarded the analysis of oral word recognition errors as a detailed count of sound and word meaning (Spache, 1976). One of these early professionals, Marion Monroe, viewed oral reading errors as a sign of imperfect learning (Weber, 1968). Monroe's major concern was with letter-sounds. Her oral reading errors included the following: faulty vowels, faulty consonants, reversals, addition of sounds, omission of sounds, substitution of words, repetition of words, addition of words, omission of words, and words aided. Many of her categories remain as a basis for categorization of word recognition errors in the diagnosis of reading problems.

While Monroe detailed errors according to sound-symbol relationship, Gates (1947) advocated a visual-perception technique. Using this method meant analyzing the stimulus word and the oral response in terms of letters. The errors were classified according to the visual pattern of the word. Gates' errors included wrong beginning, wrong middle, wrong ending, and wrong in several parts, reversals, and reversals of parts.

From this detailed counting of letter sounds and visual patterns, the analysis of word recognition errors has taken on new dimensions. No longer are the errors considered absolute. With the influence of the science of linguistics, the analysis of reading errors has taken a different direction. For example, Kenneth Goodman, in the analysis of oral reading behavior, investigated reading responses differing from the text as miscues. The linguist is concerned with what the person is doing in making the error. This would include the grammar of the sentence as well as the semantics involved (Spache, 1976).

In investigating the various approaches to recording oral errors,

the error pattern technique selected reflects the reason for analysis by the manner in which errors are categorized. And in so doing, this reveals the conceptualization of what reading involves. One of the purposes of this study was to explore new approaches to the analysis of oral reading behavior in order to discover strategies for remediation of low achieving readers. The technique employed represents a combination and refining of the established methods used. This method used five categories of word recognition errors: substitution, mispronunciation, words aided, insertion, and omission errors. These categories of errors were then analyzed as to part of speech. For a more in-depth analysis of the word recognition error, eleven parts of speech were identified: noun, proper noun, pronoun, verb, adverb, adjective, preposition, conjunction, article, interjection, and contraction.

Even though the different methods of categorizing word recognition errors exist, there is general agreement that the most common error is substitution (Weber, 1968). In a study done by Weber (1970) using twenty-one first graders, the most common error was the substitution. Even so, the sentences with the substitution errors were appropriate to the preceding context. In an earlier study of error types at grade level, Gilmore, using Form A of the Gilmore Oral Reading Test, tested 446 pupils in grades one through eight. He, too, concluded, that substitutions were the most prevalent kind of error at each grade level (Gates, 1947).

As to the importance of the type of errors made by the reader, D'Angelo and Wilson (1979) also found that in ninety-four cases investigated, 87 per cent were substitution errors, 6 per cent were

insertion errors, and 7 per cent were omission errors. The clinicians used a modified Goodman and Burke Reading Miscue Inventory to gather data. This modified miscue analysis included semantic and syntactic acceptability of substitutions, insertions, and omissions. One hundred cases were randomly chosen and each reader's instructional level was identified with the Diagnostic Reading Scales. Six were not used leaving ninety-four subjects to be examined at instructional grade levels one through eight.

According to Goodman (1967), her research has yielded the fact that insertions and omissions of words which do not change meaning tend to increase as a reader gains proficiency. Additionally, insertion miscues account for less than 10 per cent of all miscues. Further support had been found in a study done by Ilg and Ames (1950). They found that substitution errors were related to the graphic display through age seven; but by age nine, meaningful substitutions outnumbered displaying an increase to respond to context. Ilg and Ames concluded that certain types of errors may be indicative of certain levels of skill development and "might well be relatively benign and characteristic of certain age levels" (p. 293). Ilg and Ames had investigated the reading behavior of children up to ten years of age beginning as far back as age fifteen months. The first five years' observations were made of the child's spontaneous responses to pictures and to books. More than fifty children were studied at six-month intervals, ending when the child reached the fifth year. At five, five and half, six, seven, and eight years children were given the Gray Oral Check Test for Reading Readiness. At ages six, seven, eight, and nine they were given the Gray Oral Reading Paragraphs. Thirty or more cases

were studied at each age level up to nine years. Examination of data was both longitudal and cross-sectional following the reading progress of individual children at advancing age levels. Most children were above average or superior intelligence. The outcome of the study provided a "gradient" of stages a child goes through as one becomes proficient in reading.

Other studies have been concerned not only with the frequency and importance of word recognition error types but also with the difference in word recognition errors made at different grade levels and between good and poor readers. In a study done by Biemiller (1970), it was found that with increasing passage difficulty children made proportionally more non-response and graphic substitution errors. On the most difficult passages, the more able readers made higher proportions of graphic errors than other children. The subjects in the study attended grade one in two public schools in Ithaca, N.Y. The study included thirty-four children from one class in each school who participated in the experimental instructional program developed by the Laboratory for Research in Language Skills at Cornell University and forty-seven children from the other first grade classrooms in each school. The author went on to caution the reader that this evidence is based on first graders using basal reader methods, and that there is evidence that in higher grades it is retarded readers who make errors indicative of overuse or misuse of graphic information. Biemiller went on to summarize that the majority of errors made by readers who were progressing poorly seemed to be contextually constrained while most of the errors made by readers who were progressing well appeared to be non-response.

Madden and Pratt (1941) did an oral reading survey, grades three through nine, to point out mechanical factors responsible for poor reading. They found that the per cent of errors in refusals dropped decidedly after third grade. It was felt that this was accounted for because by the end of third grade, pupils tended to attack all words, either accurately or inaccurately. In the study the range of all types of errors except mispronunciations tended to be limited in all grades above grade three. This study was conducted in grades three to nine inclusive in a public school. Of the 1154 pupils tested, 591 were enrolled in grades three through six and 563 were enrolled in grades seven to nine inclusive.

In an attempt to see if any oral reading errors persisted throughout the experience of school, Schale (1966) investigated eight categories of errors from primary through secondary levels. Her subjects were randomly selected from even numbered grades two through twelve inclusive. There were a total of 180 subjects who read grade level passages from the Gray Oral Reading Tests. She found the following: (1) Oral reading errors that decreased as grade level increases were repetition, no response, and inversion. (2) Errors that increased as grade level increased were partial mispronunciation and gross mispronunciation. (3) Errors that persisted throughout the grades were substitutions, omissions, and insertions. (4) Errors that appear in the same proportionate frequency whether pupils read passages below or above their own level were substitutions, insertions, and no response. (5) Errors that did not appear in the same proportionate frequency whether pupils were reading passages of difficulty below or above their own level were repetitions, omissions, partial mispro-

nunciations, and gross mispronunciation. (6) Errors that appear most frequently throughout grades two through twelve were substitutions and repetition. (7) Errors that appear the least in grades two through twelve were omissions and insertions. Schale made three other observations: (1) Chronological maturity accompanies reduction in total oral reading errors through grades two through twelve. (2) There were no differences in errors in regards to the sex of the subject. (3) The reduction rate of total oral reading errors is rapid during the primary grades and slower and more irregular in the secondary grades.

Schlieper (1977) reported that error patterns changed from grade one to three with most changes occurring between second and third. The grade three children produced more real word substitutions and fewer nonsense words, repeated more often, and attempted more words. They showed a large increase in grammatically acceptable errors. This is consistent with other studies of the first three grades reporting an adaptation more and more to the context and structure of the passage. The good grade one readers and the poor grade three readers differed only in the number and not the type of errors. This study was done in Montreal using seventy-one children in grade one, ninety-four in grade two, and seventy-two in grade three. In the first grade the students made 50.8 per cent real word errors (substitution) compared to 64 per cent in grade three. In the category of nonsense words, categorized as a word attempted but not yielding meaningful words, the first graders scored 14.8 per cent errors and third graders scored 5.7 per cent. Omissions went from 31.2 per cent in first grade to 19.7 per cent in third. Repetitions were 3.2 per cent in first grade and went to 10.5 per cent. In the category "grammatical to error", a count of errors

that preserved grammatical structure up to the error and of those that resulted in grammatically possible complete sentence, first graders had 42.3 per cent while third graders had 70.4 per cent. In order to eliminate passage difficulty as a reason for the shift in first to third grade, a subgroup was selected from each grade who had obtained oral reading level of 2.6-3.0. If technical skill were the main determinant of their error types, the subgroup would show about the same proportion of errors. The grade one, two, and three children who were all reading at the same level were much like the total sample in their error patterns. The good grade one readers and poor grade three readers differed from their classmates more in the number than in the type of errors they made. The very poor grade three readers did not show the increase in real word errors and the decrease in omissions found in the total group, and the very good readers in grade one were sophisticated in their use of repetitions and their ability to produce complete grammatical sentences. The younger group still produced nonsense words as their peers, and the older group were like their peers in the small percentage of nonsense words.

In a study that more thoroughly investigated the possibility of a shift in errors as the material became more difficult, Berends (1971) reported that repetitions and corrections decreased as the difficulty level increased. She also reported that errors which increased as the material became more difficult were syllabic division, directional confusion, words aided, medial errors, and ending errors. Errors which did not change were visual perception and omissions. Her sample consisted of seventy-seven disabled fourth grade readers who read in a range of 2.0-3.0. The main concern of the study was the effect of

the testing instruments and the difficulty of material upon the reading performance of disabled fourth grade children.

In a study done by Russell (1973) comparing the relationship of developmental readers in the second and third grades and functionally illiterate adults at the same level of performance (2.5-4.0), he found few significant differences in the types of errors in the thirty-one subjects in each group. Russell categorized seven errors, visual perception errors, directional confusion errors, visual-auditory errors, structural errors, behavior characteristics, words aided, and syllabic division errors. At the instructional level the correlation coefficients indicated a high similarity between the two groups error patterns. There were no discernible differences at the instructional level of reading. Again at the frustration level there were no significant differences between the two groups except in the error category of syllabication in which the illiterate adult made more significant errors. Results of this study indicated that in general, oral reading error patterns of developmental readers and functionally illiterate adults are similar.

Beebe (1980) used forty-six fourth grade boys to determine to what extent their substitution miscues affected their silent reading comprehension ability and their retelling ability following oral reading. The best readers corrected almost twice as many non-acceptable miscues on the average as the weaker ones. It was generally reported that as the number of substitutions increased, comprehension and retelling scores decreased. However, as the number of acceptable and/or corrected miscues increased, comprehension and retelling scores increased rather than decreased. The author concluded that the reader

was only concerned with oral reading errors that detracted from comprehension.

In a study involving fifteen good and poor readers in the second grade, Au (1977) found the following differences: Poor readers tended to rely on visual-phonic information as evidenced in their significantly higher percentage of partial identity of nonmeaningful substitution ($p < .05$). They differed from good readers even more in the percentage of omissions ($p < .02$). The most significant difference between the two groups was in the per cent of errors self-corrected ($p < .01$). Good readers frequently corrected their own errors, but poor readers rarely did so. Good readers also made significantly more repetitions ($p < .047$). Good readers used context in 72 per cent of their errors, while poor readers used context in only 38 per cent of their errors ($p < .001$).

## Linguistic and Grammatical Aspects of Word Recognition Errors

As the categorizing of oral word recognition has been changed and refined, reading experts have begun to look at the underlying reasons of oral reading errors. The reading process is no longer viewed as decoding only but is viewed in the context of causes and ramifications of the error made on the comprehension of the text. In a descriptive study, Goodman (1965) reported the oral reading behavior of first, second, and third grade children. The subjects were 100 children attending the same school in Detroit. Each subject was tested individually with a word list from a story on his grade level. The student was then asked to read orally the story on which the word

list was based. The children were increasingly able to read words in context correctly, even though they might have made mistakes on the same words in isolation. He also reported that substitutions and repetitions increased and omissions decreased over the three years.

In connection with this, Goodman (1967) reported that insertions and omissions of words which do not change meaning tend to increase as a reader gains proficiency. Insertion miscues generally account for less than 10 per cent of all miscues and are not frequent in the oral reading of less proficient readers. Goodman conducted her research using six beginning readers who were presented material new to them at monthly intervals. She also concluded that the beginning reader begins to make better use of syntactic and semantic information as the reading ability develops.

Allen (1969) used fifteen subjects, five each at grades two, four, and six, to analyze errors according to Goodman's taxonomy. The 1521 miscues revealed over 70 per cent of the miscues to have syntactic acceptability. The phrase level substitution constituted the largest number of substitutions at all three grade levels.

Clay (1967) also found similar results. From all records for weekly observations of 100 children who were in their first year at school, 10,525 errors were recorded. Twenty-six per cent of these errors were self-corrected. Of the 7674 errors that were substitutions, 72 per cent occurred in equivalent morpheme class or morpheme-sequence class structures. When errors were single words in an otherwise correct response, the textual stimulus and the word substituted belonged to an equivalent morpheme class. Clay concluded that there is a high incidence of syntactic equivalence between error substitu-

tions and the textual stimulus.

In the Madden and Pratt (1941) study previously cited, a part of the study was also concerned with the kinds of words pupils in grades three through nine included or omitted because of the possibility of distortion created by the addition or omission. In both the addition and omission list, the parts of speech most often violated were the article, the preposition, and then verb.

In a study done by Barbara Stoodt (1970) the relationship between reading comprehension and the comprehension of conjunctions was compared. The subjects included ninety-four fourth grade students selected randomly from the fourth grade population at three socio-economic levels in a public school. The study revealed that there is a significant relationship between reading comprehension and comprehension of conjunctions.

Dulin (1969) gave evidence to the idea that high school students use context clues for understanding unfamiliar words and that certain types of clues interact with the various form classes, part of speech, to make the process more or less difficult. The data for this was collected by using categories of context clues taken from Artley, Betts, and McCullough. The testing was given to 315 tenth grade students.

In a study previously cited by D'Angelo and Wilson (1979), an analysis was made of 595 oral reading miscues according to semantic and syntactic analysis. Of the thirty-three insertion errors made, 94 per cent did not distort semantics and 82 per cent did not distort syntax. Sixty-nine per cent made no omissions. The data collected suggested that the time spent coding and interpreting insertion and

omission miscues is of little use in clinical practice and could be deleted. Thus the process of coding and interpreting could be simplified and attention could be focused on other reading behaviors.

Errors were collected by Bennett (1942) from the oral reading of over 700 retarded readers in the middle grades as they progressed through thirty remedial lessons composed from a vocabulary of 594 words. She reported that 33 per cent of the 34,272 errors occurred when the beginning and ending of the word were the same. The data indicated that there is almost a two to one chance that the beginning of the word will be more dominant cue than the ending of the word. The writer further reported that 41 per cent of the errors were closely associated in thought with the stimuli. Fifty per cent of the errors were of the same part of speech as the stimuli. The study was done on retarded readers, many classified as non-readers who had made little or no progress and averaged third or fourth grade in school placement. She concluded that retardation in reading could be related to the tendency to give a response associated with the stimuli before it is fully perceived.

In a dissertation studying the oral reading errors of students at independent, instructional, and frustrational levels, Christenson (1966) found that pronoun, conjunction, and adjective errors occurred more frequently than the expected frequencies of these kinds of errors at the independent reading level. Noun errors occurred more frequently than the expected frequency of this kind of error at the frustrational level. Christenson's sample consisted of sixty-eight pupils at grades four, five, and six.

Harrison (1981) studied twenty able and twenty disabled readers

performing on reading levels of 2.5 to 4.0. Harrison found that the error patterns of able and disabled readers at this range to be minimal. At the instructional level disabled readers made significantly more errors on substitutions of proper nouns on the 2.5 passage and insertion of articles on the 3.0 passage. Able readers made significantly more errors than disabled on substitution of verbs on the 3.5 passage. At the frustration level disabled readers made significantly more errors than able readers on the substitution of nouns on the 3.5 passage. At the frustration level disabled readers made significantly more errors than able readers on the substitutions of nouns and prepositions on the 3.0 passage and on omissions of conjunctions on the 3.5 passage. Able readers made significantly more errors than disabled readers on words aided of nouns on the 3.0 passage. The study examined the differences in the two groups in five word recognition error categories, substitution, mispronunciation, words aided, omission, and insertion and ten parts of speech: proper noun, noun, pronoun, verb, adverb, adjective, conjunction, article, preposition, and interjection at both the instructional and frustration levels. At Level I, Harrison reported the following percentages in the word recognition error categories: Substitution - 72%; Words Aided - 12%; Mispronunciation - 8%; Omission - 5%; and Insertion - 3%. At Level II, she reported the following percentages of types of errors: Substitution - 69%; Words Aided - 15%; Mispronunciation - 9%; Omission - 5%; Insertion - 2%. Substitutions were reported to be the majority of the errors recorded at both levels. Harrison tabulated 2062 errors at Level I and 2162 errors at Level II.

## Summary

In looking at word recognition errors as to types, the substitution error remains the most consistently reported error, occurring more frequently at all age levels or abilities. In looking at this error in a broader sense, though it is scored more often than any other error, its affect on comprehension is an area in need of further investigation.

Even in scoring error types, as the student matures, all word recognition error types drops. The reader seems to be moving away from dependence on graphic displays to the utilization of a semantic-syntactic cues. The poorer readers, however, seem to be contextually constrained. (Biemiller, 1970). As a reader matures, the striving for semantic-syntactic sense overrides the need for word calling, even for the disabled reader who will substitute just as the able reader in order to continue fluency.

# CHAPTER III

## DESIGN AND METHODOLOGY

This chapter contains a description of the population of the study, the instruments used for the collection of the data, and the statistical treatment of the data.

### Description of the Sample

The sample for this study consisted of twenty-three elementary students and twenty-three secondary students. The secondary students were enrolled in reading classes in a public high school. The elementary students were also students who were enrolled in a public school in grades three, four, and five.

Each elementary developmental reader was reading on grade level with a tolerance of plus or minus one year determining the outer limits of the range of performance. The elementary developmental readers' verbal intelligence was in the 90 to above range as measured by the Peabody Picture Vocabulary Test (PPVT), Form A (Dunn, 1965). There were twelve males and eleven females in the sample of elementary developmental readers. In the elementary sample twelve students were in grade placement of 3.8, six students were in grade placement of 4.0, and five were in grade placement 5.0. Of this same sample, nine were reading at an instructional level of 4.0, nine at 5.0 and five at 6.0.

Each secondary disabled reader was reading two years below the expected reading level (ERL) as determined by the Bond-Tinker formula (ERL = IQ/100 x years in school + 1) (Ekwall, 1978). The verbal intelligence of each disabled secondary reader was in the 90 to above range as measured by the PPVT, Form A. The disabled secondary readers consisted of thirteen males and ten females, fifteen of whom were in grade placement 9.7, seven in 10.7 and one in grade 11.7. Of this same sample, two were reading at an instructional level of 4.0, four at 5.0 and seventeen at 6.0.

Each of the readers was screened for inclusion in the sample with the Gates-MacGinitie Reading Test (Revised) (MacGinitie, 1978). Form One, Levels C and D were used with the elementary developmental readers. Form One, Level E was used for the disabled ninth grade readers. Form One, Level F was used with the disabled readers in grades ten, eleven, and twelve. The student's instructional reading level was between 4.0-6.0, based on performance on the Standard Reading Inventory, Form B (McCracken, 1966).

## Description of Testing Instruments

### Standard Reading Inventory, Form B (1966)

The Standard Reading Inventory (SRI) is an individually administered reading test for measuring reading achievement at pre-primer through seventh reader levels (McCracken, 1966). There are eleven stories for oral reading and eight for silent reading. Ten comprehension questions accompany each passage. Only the oral passages with the accompanying comprehension questions were used. Instructional level was established when the reader's word recognition accuracy fell

between 91 and 94 per cent with at least 60 per cent accuracy in comprehension. Frustrational level was established when the highest reading level at which the reader's word recognition accuracy fell below 91 per cent or comprehension fell below 50 per cent.

Three basal reading series, Allyn and Bacon, Inc., Ginn and Company, and Scott-Foresman and Company, were the basis of the content. Content validity was obtained by using words in the passages and word lists in the same manner as they were introduced in the three basal reader series mentioned. The sentence length, content, and over-all style of the passages in the SRI were also fashioned after the basal texts. Both the Spache (1961) and Dale-Chall (1948) readability formulas were used in analyzing the stories. In addition, twenty-five reading experts were asked to subjectively evaluate the basal book level of each story on both Form A and B. The rank correlation between experts' ratings and SRI book levels was 0.994 for Form A and 0.993 for form B (McCracken, 1966). Two concurrent validity studies between the Standard Reading Inventory and the California Reading Test correlated at .87. Equivalent form reliability was established by having two examiners administer Form A and B to 60 children in grades one through six. All correlations were significantly different from zero ($p < 0.001$) (McCracken, 1966).

Peabody Picture Vocabulary Test

The Peabody Picture Vocabulary Test (PPVT) (Dunn, 1965) is an individually administered test designed to provide an estimate of subject's verbal intelligence through measuring his hearing vocabulary.

The test consists of 150 plates arranged in order of difficulty and 150 stimulus words, each of which is defined or illustrated by one of the four line-drawings on the plate with a corresponding number. The students point to, or otherwise indicate, the picture on the page which best portrays the meaning of the stimulus word pronounced by the examiner. Norms are provided for ages ranging from eighteen months to eighteen years. Any one student is given only the portion of the test which is within his ability range.

Standardization was based on 4,012 white children and youth in and around Nashville, Tennessee. Neville (1965) found no significant difference between the mean full-scale IQ on the Wechlser Intelligence Scale for Children and the PPVT.

Alternate form reliability coefficient for the PPVT were obtained by calculating the Pearson Product Moment Correlation on the raw scores of the standardization subjects for Forms A and B at each level. Correlations ranged from a low of .67 at the six year level to a high of .84 at the 17 and 18 year levels with a median of .77. Eleven studies were found in the literature for the five year period, 1959-64, providing reliability information on the PPVT---two each with regular classroom subjects, institutionalized retardates, community educable retardates, and the physically handicapped. In light of the evidence to date, coefficients of equivalence and temporal stability appear to be satisfactory for both average children, and for those who have one of a number of disabilities (Dunn, 1965).

"Content validity was built into the test when a complete search was made of Webster's New Collegiate Dictionary"(Dunn, 1965). Only words

which could not be illustrated were omitted. From this list a cross section of words was obtained of words commonly used today in the United States.

Extended Passages

These four tests consisted of a series of passages each containing at least 500 words to be read orally. The content of these passages resembled basal reader materials. All of the passages were written in a narrative style, and the average length of the lines in the stories was four inches. This agrees with the literature, which maintains that a line should not exceed four inches (Uhl, 1937).

The 4.0 passage was taken from the Stories of Stuever (Stuever, 1969) which was graded and organized especially for her study in 1969. Passages 5.0 and 6.0 were taken from stories used in a university reading clinic and revised by Johnson. The 7.0 story was taken from a basal reader and edited and graded by Johnson. The passages are available from the Oklahoma State Reading Clinic. The Dale-Chall Readability Formula was used to establish appropriate readability of the passages for use in the study.

Each word in the four passages was categorized as to part of speech in consultation with three university professors in the area of grammatical usage. Eleven parts of speech were used to allow for in-depth analysis. These were categorized as: verb, noun, pronoun, adjective, article, conjunction, adverb, preposition, interjection, contraction, and proper noun. Infinitives were divided into two separate categories. The preposition of the infinitive was categorized as a preposition. The verb of the infinitive was categorized

as a verb. Distribution of parts of speech by passage is listed in Table I. Errors were marked for categorization only.

Gates-MacGinitie Reading Tests

Levels C, D, E, and F of the Gates-MacGinitie Reading Test (MacGinitie, 1978) consist of a vocabulary and a comprehension test. The vocabulary portion of the test samples the student's reading vocabulary. It is primarily a test of word knowledge rather than a test of decoding skills. At each level there are forty-five items, each consisting of a test word followed by five words or phrases. The student's task is to choose the word or phrase that means most nearly the same as the test word.

The comprehension test measures the student's ability to read complete prose passages with understanding. Levels E and F each contain fourteen different passages of varying lengths and a total of forty-three questions. Level D contains sixteen different passages and a total of forty-three questions. Level C contains twenty-two different passages with two questions about each passage.

The standardization was carried out in districts whose population was stratified according to geographic region, district enrollment size, and district socioeconomic characteristics. Districts were selected to produce within each region a representative proportion of black and Hispanic students. A total of eighty-six school districts, including parochial schools, participated in the norming, and seventy-four districts participated in the equating. The norming samples included 5,000 students per grade.

TABLE I

FREQUENCY DISTRIBUTION OF PARTS OF SPEECH BY PASSAGE

| | "Old Grouch Moves In" 4.0 | "Mickey Mantle" 5.0 | "The Cemetery" 6.0 | "Old Ranger" 7.0 |
|---|---|---|---|---|
| VERB | 104 | 85 | 125 | 130 |
| ARTICLE* | 62 | 54 | 42 | 44 |
| NOUN | 108 | 105 | 70 | 74 |
| CONJUNCTION | 30 | 16 | 24 | 39 |
| PRONOUN | 48 | 43 | 81 | 71 |
| ADJECTIVE | 71 | 65 | 49 | 53 |
| ADVERB | 32 | 41 | 23 | 36 |
| PREPOSITION | 64 | 72 | 53 | 53 |
| INTERJECTION | 0 | 1 | 2 | 0 |
| CONTRACTION* | 0 | 2 | 11 | 2 |
| PROPER NOUN* | 26 | 24 | 25 | 43 |

*Categorized as a separate part of speech to allow for more in-depth analysis

The Kuder-Richardson Formula 20 reliability coefficients were computed for each test level. The K-R 20 coefficients ranged from .90 to .95 for vocabulary and from .88 to .94 for comprehension.

Extensive steps were taken to insure test validity. The vocabulary words for each test level were selected to be characteristic of words likely to be read by students in the grade range covered by that test level. Vocabulary words were chosen to be important words of general usefulness; a balance of nouns, verbs, adjectives, and adverbs was maintained at Levels C-F. The subject matter content of the comprehension tests was selected according to a blueprint that gives varying emphasis to material from the humanities, the social sciences, the natural sciences, and to story or narrative material. The emphasis at the younger grade levels is on story material; at the higher grade levels, there is increasing emphasis on materials from the various subject matter disciplines.

Questions about the passages include both literal questions, in which the student needs to choose a restatement of something in the passage; and inferential questions in which the student must infer something that has not been directly stated. Scoring directions were followed according to the manual.

## Statistical Techniques Used

To determine if significant differences existed between the number of errors of each word recognition error type made by secondary disabled readers at Levels I and II and elementary developmental readers at Levels I and II, the Mann-Whitney U, corrected for ties, was used using a two-tailed probability. This same procedure was used to

determine if significant differences existed between the number of word recognition error types made on different parts of speech of the textual stimulus by secondary disabled readers at Levels I and II and elementary developmental readers at Levels I and II.

## Testing Procedure

The Gates-MacGinitie Reading Tests (MacGinitie, 1978) were administered to all elementary developmental readers and secondary disabled readers in a group setting to establish a group range and entry point for the Standard Reading Inventory (SRI), Form B (McCracken, 1966). If the student performed in the range necessary for the study, the Peabody Picture Vocabulary Test, Form A, (Dunn, 1965) was individually administered. Those that scored in a 90 or above in verbal intelligence on the PPVT were asked to individually read orally to the examiner passages 4.0, 5.0, 6.0 and 7.0 of the SRI, Form B, in order to establish instructional and frustrational levels of reading. Readers whose instructional reading level fell in the 4.0-6.0 range were asked to read orally from the Extended Passages corresponding to their instructional and frustrational levels established by the SRI.

## Summary

The population studied in the investigation, the instruments used in the collection of data, and the statistical treatment of the data have been included in this chapter. The sample consisted of twenty-three developmental elementary readers and twenty-three secondary disabled readers from Oklahoma and Colorado whose verbal

intelligence was 90 or above as measured by the Peabody Picture Vocabulary Test, Form A (Dunn, 1965). The subjects were screened with the Gates-MacGinitie Reading Test (MacGinitie, 1978), to determine entry into the Standard Reading Inventory (SRI), Form B (McCracken, 1966). After determining Level I and Level II for the study with the SRI, the students were asked to read orally at sight the extended passages. Reading of the extended passages and the SRI were tape recorded.

The Mann-Whitney U statistic was employed to determine if significant differences existed between the number of word recognition error type made by secondary disabled readers and elementary developmental readers at Levels I and II. The same statistic was used to determine if significant differences existed between the number of word recognition error types made on different parts of speech of the textual stimulus by secondary disabled readers at Levels I and II and elementary developmental readers at Levels I and II. The level of significance was set at .05 or below.

# CHAPTER IV

## RESULTS

This study was concerned with the difference at reading ranges 4.0-6.0 and 5.0-7.0 between the number of errors of each word recognition error types made by secondary disabled readers at Levels I and II and elementary developmental readers at Levels I and II. This study was also concerned with the difference at reading ranges 4.0-6.0 and 5.0-7.0 between the number of word recognition error types made on different parts of speech of the textual stimulus by secondary disabled readers at Level I and II and elementary developmental readers at Levels I and II.

Word recognition errors made on extended passages from the Stories of Stuever (Revised) (Stuever, 1969) and passages developed by Johnson and the Oklahoma State University Reading Laboratory were the basis for the analysis. Included are analyses of oral reading errors made at Level I (91-94 per cent word recognition) and Level II (less than 91 per cent word recognition). The hypotheses were examined first at Level I and then at Level II. The Mann-Whitney U Test was used on the data of the total of each word recognition error type made by secondary disabled readers and developmental elementary readers at Levels I and II.

## Tests of the Hypotheses

The first two hypotheses are concerned with the difference between the total number of each word recognition type between secondary disabled readers and developmental elementary readers first at Level I (91-94 per cent word recognition) and then at Level II (less than 91 per cent word recognition).

The hypotheses relating to the difference between the number of word recognition error type made on different parts of speech of the textual stimulus will be reported in the following order with each word recognition type examined in the eleven parts of speech as categorized:

| | | |
|---|---|---|
| Hypothesis 3: | Substitution Errors | Level I |
| Hypothesis 4: | Substitution Errors | Level II |
| Hypothesis 5: | Insertion Errors | Level I |
| Hypothesis 6: | Insertion Errors | Level II |
| Hypothesis 7: | Mispronunciation Errors | Level I |
| Hypothesis 8: | Mispronunciation Errors | Level II |
| Hypothesis 9: | Words Aided Errors | Level I |
| Hypothesis 10: | Words Aided Errors | Level II |
| Hypothesis 11: | Omission Errors | Level I |
| Hypothesis 12: | Omission Errors | Level II |

Hypothesis 1: There is no difference at reading range 4.0-6.0 in the number of errors of each word recognition error type made by secondary disabled readers at Level I and elementary developmental readers. This hypothesis was examined separately in the following error type categories: words aided, mispronunciation, substitution, omission and insertion. Shown in Table II are the results. For the categories of substitution, insertion, words aided, and omission the null hypotheses are not rejected. The null hypothesis is rejected for the category of mispronunciation. For the data concerning mispronunciation, the $\underline{U}$ value is 144.0 which is significant at the .05 level. In the category of mis-

TABLE II

COMPARISONS OF WORD RECOGNITION ERRORS FOR DEVELOPMENTAL ELEMENTARY AND DISABLED SECONDARY READERS AT LEVEL I

| Word Recognition Error | U-Value | Mean | |
|---|---|---|---|
| | | Developmental | Disabled |
| Substitution | 177.5 | 27.78 | 19.72 |
| Insertion | 242.0 | 22.52 | 24.48 |
| Mispronunciation | 144.0* | 28.74 | 18.26 |
| Words Aided | 224.0 | 25.26 | 21.74 |
| Omission | 232.0 | 24.91 | 22.09 |

*Significant at the .05 level

pronunciation, elementary developmental readers made significantly more errors than secondary disabled readers.

Hypothesis 2: There is no difference at reading range 5.0-7.0 in the number of errors of each word recognition error type made by secondary disabled readers at Level II and elementary developmental readers at Level II. As in Hypothesis 1, Hypothesis 2 was examined separately in the following error type categories: words aided, mispronunciation, substitution, omission, and insertion. The results are shown in Table III. For the categories of substitution, insertion, words aided, and omission, the null hypotheses are not rejected. The null hypothesis is rejected for the category of mispronunciation. For the data concerning mispronunciation, the U value of 166.0 is significant at the .05 level. Again, elementary developmental readers made significantly more errors than secondary disabled readers.

Hypothesis 3: There is no difference at reading range 4.0-6.0 between the number of substitution errors on different parts of speech of the textual stimulus made by secondary disabled readers at Level I and elementary developmental readers at Level I. This hypothesis was examined separately for each of the following parts of speech: verb, noun, pronoun, adjective, article, conjunction, adverb, preposition, interjection, contraction, and proper noun. The results are presented in Table IV. There are no significant differences in any of the categories; therefore, the null hypotheses are not rejected.

Hypothesis 4: There is no difference at reading range 5.0-7.0 between the number of substitution errors on different parts of speech of the textual stimulus made by secondary disabled readers at Level II and elementary developmental readers at Level II. This hypothesis was

TABLE III

COMPARISONS OF WORD RECOGNITION ERRORS FOR DEVELOPMENTAL ELEMENTARY AND DISABLED SECONDARY READERS AT LEVEL II

| Word Recognition Error | U-Value | Mean | |
|---|---|---|---|
| | | Developmental | Disabled |
| Substitution | 189.5 | 26.76 | 20.24 |
| Insertion | 246.0 | 22.70 | 24.30 |
| Mispronunciation | 166.0* | 27.78 | 19.22 |
| Words Aided | 228.5 | 25.07 | 21.93 |
| Omission | 193.0 | 26.61 | 20.39 |

*Significant at the .05 level

TABLE IV

COMPARISON OF SUBSTITUTION ERRORS MADE ON DIFFERENT PARTS OF SPEECH OF THE TEXTUAL STIMULUS AT LEVEL I

| Part of Speech | U-Value | Mean Rank Able | Mean Rank Disabled |
|---|---|---|---|
| Verb | 227.0 | 25.13 | 21.87 |
| Noun | 186.0 | 26.91 | 20.09 |
| Pronoun | 208.5 | 25.93 | 21.07 |
| Adjective | 179.0 | 27.22 | 19.78 |
| Article | 211.5 | 25.80 | 21.20 |
| Conjunction | 226.0 | 25.17 | 21.83 |
| Adverb | 264.0 | 23.52 | 23.48 |
| Preposition | 202.0 | 26.22 | 20.78 |
| Interjection | 253.0 | 24.00 | 23.00 |
| Contraction | 241.5 | 22.50 | 24.50 |
| Proper Noun | 222.0 | 25.35 | 21.65 |

examined separately for each of the following parts of speech: verb, noun, pronoun, adjective, article, conjunction, adverb, preposition, interjection, contraction, and proper noun. The results are presented in Table V. The null hypotheses are not rejected in all of the categories except two. The null hypotheses are rejected for the categories of pronoun and adjective. For the data concerning pronoun, the U value is 146.0, which is significant at .05 level. For the data concerning adjective, the U value is 150.0, which is significant at .05 level. In both categories, elementary developmental readers made significantly more errors than secondary disabled readers.

Hypothesis 5: There is no difference at reading range 4.0-6.0 between the number of insertion errors on different parts of speech of the textual stimulus made by secondary disabled readers at Level I and elementary developmental readers at Level I. This hypothesis was examined separately for each of the following parts of speech: verb, noun, pronoun, adjective, article, conjunction, adverb, preposition, interjection, contraction, and proper noun. The results are listed in Table VI. The null hypotheses are not rejected for all of the parts of speech.

Hypothesis 6: There is no difference at reading range 5.0-7.0 between the number of insertion errors on different parts of speech of the textual stimulus made by secondary disabled readers at Level II and elementary developmental readers at Level II. For each of the separate parts of speech examined, verb, noun, pronoun, adjective, article, conjunction, adverb, preposition, interjection, contraction, and proper noun, no significant differences are reported in Table VII. Therefore, these null hypotheses are not rejected.

TABLE V

COMPARISON OF SUBSTITUTION ERRORS MADE ON DIFFERENT PARTS OF SPEECH OF THE TEXTUAL STIMULUS AT LEVEL II

| Part of Speech | U-Value | Mean Rank Able | Mean Rank Disabled |
|---|---|---|---|
| Verb | 251.5 | 24.07 | 22.93 |
| Noun | 254.5 | 23.93 | 23.07 |
| Pronoun | 146.0* | 28.65 | 18.35 |
| Adjective | 150.0* | 28.48 | 18.52 |
| Article | 252.0 | 24.04 | 22.96 |
| Conjunction | 258.5 | 23.76 | 23.24 |
| Adverb | 261.0 | 23.35 | 23.65 |
| Preposition | 182.0 | 27.09 | 19.91 |
| Interjection | 264.5 | 23.50 | 23.50 |
| Contraction | 244.0 | 24.39 | 22.61 |
| Proper Noun | 239.5 | 22.41 | 24.59 |

*Significant at the .05 level

TABLE VI

COMPARISON OF INSERTION ERRORS MADE ON DIFFERENT PARTS OF SPEECH OF THE TEXTUAL STIMULUS AT LEVEL I

| Part of Speech | U-Value | Mean Rank Able | Mean Rank Disabled |
|---|---|---|---|
| Verb | 214.5 | 21.33 | 25.67 |
| Noun | 252.5 | 22.98 | 24.02 |
| Pronoun | 231.5 | 22.07 | 24.93 |
| Adjective | 251.5 | 24.07 | 22.93 |
| Article | 225.0 | 25.22 | 21.78 |
| Conjunction | 228.0 | 25.09 | 21.91 |
| Adverb | 231.0 | 22.04 | 24.96 |
| Preposition | 212.5 | 25.76 | 21.24 |
| Interjection | 264.5 | 23.50 | 23.50 |
| Contraction | 221.0 | 21.61 | 25.39 |
| Proper Noun | 253.0 | 23.00 | 24.00 |

TABLE VII

COMPARISON OF INSERTION ERRORS MADE ON DIFFERENT PARTS OF SPEECH OF THE TEXTUAL STIMULUS AT LEVEL II

| Part of Speech | U-Value | Mean Rank Able | Mean Rank Disabled |
|---|---|---|---|
| Verb | 226.0 | 21.83 | 25.17 |
| Noun | 211.0 | 21.17 | 25.83 |
| Pronoun | 258.0 | 23.22 | 23.78 |
| Adjective | 240.0 | 24.57 | 22.43 |
| Article | 240.0 | 24.57 | 22.43 |
| Conjunction | 232.0 | 24.91 | 22.09 |
| Adverb | 255.0 | 23.91 | 23.09 |
| Preposition | 242.5 | 22.54 | 24.46 |
| Interjection | 264.5 | 23.50 | 23.50 |
| Contraction | 241.5 | 24.50 | 22.50 |
| Proper Noun | 208.0 | 21.04 | 25.96 |

Hypothesis 7: There is no difference at reading range 4.0-6.0 between the number of mispronunciation errors on different parts of speech of the textual stimulus made by secondary disabled readers at Level I and elementary developmental readers at Level I. There was one significant difference in the category of mispronunciation of nouns. The U value of 159.0 is significant. The results are shown in Table VIII. For the other categories investigated, verb, article, conjunction, adverb, adjective, preposition, interjection, contraction, pronoun, and proper noun, the null hypotheses are not rejected. Elementary developmental readers made significantly more mispronunciation of nouns than secondary disabled readers.

Hypothesis 8: There is no difference at reading range 5.0-7.0 between the number of mispronunciation errors on different parts of speech of the textual stimulus made by secondary disabled readers at Level II and elementary developmental readers at Level II. Of the separate areas investigated, verb, noun, pronoun, adjective, article, conjunction, adverb, preposition, interjection, contraction, and proper noun, only the difference between the numbers of adjectives mispronounced is significant (U=155.0). Elementary developmental readers made significantly more errors than secondary disabled readers did in this one category. The results are provided in Table IX.

Hypothesis 9: There is no difference at reading range 4.0-6.0 between the number of words aided on different parts of speech of the textual stimulus made by secondary disabled readers at Level I and elementary developmental readers at Level I. In examining the data for the separate categories investigated: verb, noun, pronoun, adjective, article, conjunction, adverb, preposition, interjection, contraction,

TABLE VIII

COMPARISON OF MISPRONUNCIATION ERRORS MADE ON DIFFERENT PARTS OF SPEECH OF THE TEXTUAL STIMULUS AT LEVEL I

| Part of Speech | U-Value | Mean Rank Able | Mean Rank Disabled |
|---|---|---|---|
| Verb | 193.5 | 26.59 | 20.41 |
| Noun | 159.0* | 28.09 | 18.91 |
| Pronoun | 264.5 | 23.50 | 23.50 |
| Adjective | 196.0 | 26.48 | 20.52 |
| Article | 264.5 | 23.50 | 23.50 |
| Conjunction | 264.5 | 23.50 | 23.50 |
| Adverb | 264.5 | 23.50 | 23.50 |
| Preposition | 253.0 | 24.0 | 23.0 |
| Interjection | 241.5 | 24.50 | 22.50 |
| Contraction | 264.5 | 23.50 | 23.50 |
| Proper Noun | 255.0 | 23.91 | 23.09 |

*Significant at the .05 level

TABLE IX

COMPARISON OF MISPRONUNCIATION ERRORS MADE ON DIFFERENT PARTS OF SPEECH OF THE TEXTUAL STIMULUS AT LEVEL II

| Part of Speech | U-Value | Mean Rank Able | Mean Rank Disabled |
|---|---|---|---|
| Verb | 235.5 | 24.76 | 22.24 |
| Noun | 210.0 | 25.87 | 21.13 |
| Pronoun | 264.5 | 23.50 | 23.50 |
| Adjective | 155.0* | 28.26 | 18.74 |
| Article | 264.5 | 23.50 | 23.50 |
| Conjunction | 253.0 | 24.00 | 23.00 |
| Adverb | 264.5 | 23.50 | 23.50 |
| Preposition | 241.5 | 24.50 | 22.50 |
| Interjection | 253.0 | 24.00 | 23.00 |
| Contraction | 253.0 | 23.00 | 24.00 |
| Proper Noun | 252.0 | 22.96 | 24.04 |

*Significant at the .05 level

and proper noun, the null hypotheses are not rejected. The results are listed in Table X.

Hypothesis 10: There is no difference at reading range 5.0-7.0 between the number of words aided on different parts of speech of the textual stimulus made by secondary disabled readers at Level II and elementary developmental readers at Level II. The null hypotheses are not rejected in each of the separate categories investigated: verb, noun, pronoun, adjective, article, conjunction, adverb, preposition, interjection, contraction, and proper noun as seen in Table XI.

Hypothesis 11: There is no difference at reading range 4.0-6.0 between the number of omission errors on different parts of speech of the textual stimulus made by secondary disabled readers at Level I and elementary developmental readers at Level I. There were no significant differences found in any of the parts of speech investigated: verb, noun, pronoun, adjective, article, conjunction, adverb, preposition, interjection, contraction, and proper noun. The null hypotheses are not rejected. These results are provided in Table XII.

Hypothesis 12: There is no difference at reading range 5.0-7.0 between the number of omission errors on different parts of speech of the textual stimulus made by secondary disabled readers at Level II and elementary developmental readers at Level II. The null hypotheses are not rejected for the categories of verb, noun, pronoun, adjective, adverb, preposition, interjection, contraction, and proper noun. For the categories of article and conjunction, the null hypotheses are rejected. The results are listed in Table XIII. For the data concerning omissions of articles, the $\underline{U}$ value of 181.5 is significant. For the data concerning omissions of conjunctions, the $\underline{U}$ value is 198.5 and is signifi-

TABLE X

COMPARISON OF WORDS AIDED MADE ON DIFFERENT PARTS OF SPEECH OF THE TEXTUAL STIMULUS AT LEVEL I

| Part of Speech | U-Value | Mean Rank Able | Mean Rank Disabled |
|---|---|---|---|
| Verb | 247.0 | 22.74 | 24.46 |
| Noun | 198.0 | 26.37 | 20.63 |
| Pronoun | 253.0 | 23.00 | 24.0 |
| Adjective | 262.0 | 23.39 | 23.61 |
| Article | 264.5 | 23.50 | 23.50 |
| Conjunction | 264.5 | 23.5 | 23.50 |
| Adverb | 253.0 | 24.0 | 23.0 |
| Preposition | 264.5 | 23.50 | 23.50 |
| Interjection | 253.0 | 23.00 | 24.00 |
| Contraction | 264.5 | 23.50 | 23.50 |
| Proper Noun | 207.0 | 26.0 | 21.0 |

TABLE XI

COMPARISON OF WORDS AIDED MADE ON DIFFERENT PARTS OF SPEECH OF THE TEXTUAL STIMULUS AT LEVEL II

| Part of Speech | U-Value | Mean Rank Able | Mean Rank Disabled |
|---|---|---|---|
| Verb | 253.0 | 24.0 | 23.0 |
| Noun | 209.0 | 25.91 | 21.09 |
| Pronoun | 253.0 | 24.0 | 23.0 |
| Adjective | 261.5 | 23.63 | 23.37 |
| Article | 264.5 | 23.50 | 23.50 |
| Conjunction | 264.5 | 23.50 | 23.50 |
| Adverb | 209.5 | 25.89 | 21.11 |
| Preposition | 241.5 | 24.50 | 22.50 |
| Interjection | 241.5 | 22.50 | 24.50 |
| Contraction | 264.5 | 23.50 | 23.50 |
| Proper Noun | 240.0 | 22.43 | 2457 |

TABLE XII

COMPARISON OF OMISSION ERRORS MADE ON DIFFERENT PARTS OF SPEECH OF THE TEXTUAL STIMULUS AT LEVEL I

| Part of Speech | U-Value | Mean Rank Able | Mean Rank Disabled |
|---|---|---|---|
| Verb | 249.0 | 24.17 | 22.83 |
| Noun | 261.5 | 23.63 | 23.37 |
| Pronoun | 228.5 | 25.07 | 21.93 |
| Adjective | 250.5 | 24.11 | 22.89 |
| Article | 257.0 | 23.83 | 23.17 |
| Conjunction | 253.0 | 24.0 | 23.0 |
| Adverb | 253.0 | 24.00 | 23.00 |
| Preposition | 200.5 | 26.28 | 20.72 |
| Interjection | 264.5 | 23.50 | 23.50 |
| Contraction | 230.0 | 22.0 | 25.00 |
| Proper Noun | 253.0 | 24.0 | 23.0 |

TABLE XIII

COMPARISON OF OMISSION ERRORS MADE ON DIFFERENT PARTS OF SPEECH OF THE TEXTUAL STIMULUS AT LEVEL II

| Part of Speech | U-Value | Mean Rank Able | Mean Rank Disabled |
|---|---|---|---|
| Verb | 226.5 | 25.15 | 21.85 |
| Noun | 252.0 | 24.04 | 22.96 |
| Pronoun | 232.5 | 24.89 | 22.11 |
| Adjective | 260.0 | 23.70 | 23.30 |
| Article | 181.5* | 27.11 | 19.89 |
| Conjunction | 198.5* | 26.37 | 20.63 |
| Adverb | 256.5 | 23.85 | 23.15 |
| Preposition | 238.5 | 24.63 | 22.37 |
| Interjection | 264.5 | 23.50 | 23.50 |
| Contraction | 241.5 | 24.50 | 22.50 |
| Proper Noun | 253.0 | 24.0 | 23.0 |

*Significant at the .05 level

cant. Elementary developmental readers made significantly more errors in both omission of conjunctions and omission of articles.

## Summary

This chapter included a detailed account of the treatment of the data. The Mann-Whitney U was used to analyze the difference in the total numbers of each word recognition error type between secondary disabled readers and developmental elementary readers at Levels I and II. The .05 level of significance was used. A total of eight significant differences was indicated for the analysis of the data. Comparisons made at Level I on passages with readability levels of 4.0, 5.0, and 6.0 indicated elementary developmental readers made significantly more errors in mispronunciations, as it relates specifically to word recognition error type, and in mispronunciation of nouns. At Level II comparisons were made on passages with readability levels 5.0, 6.0, and 7.0. Elementary developmental readers made significantly more errors than secondary disabled readers in six categories: mispronunciation, as it relates specifically to word recognition error type, substitution of pronouns, substitution of adjectives, mispronunciation of adjectives, omission of articles, and omission of conjunctions.

# CHAPTER V

## SUMMARY AND CONCLUSIONS

This study was concerned with the difference at reading ranges of 4.0-6.0 and 5.0-7.0 between the number of errors of each word recognition error type made by secondary disabled readers at Levels I and II and elementary developmental readers at Levels I and II. This study was also concerned with the difference between the number of word recognition error type made on different parts of speech of the textual stimulus by secondary disabled readers at Levels I and II and elementary developmental readers at Levels I and II.

Word recognition errors made on extended passages from the Stories of Stuever (Revised) (Stuever, 1969) and passages developed by Johnson and a university reading laboratory were the basis for the analysis. The extended passages given the student at Level I and Level II corresponded with the passages of the Standard Reading Inventory, Form B (McCracken, 1966).

The sample consisted of twenty-three third, fourth, and fifth grade developmental readers from public schools in Oklahoma and Colorado and twenty-three disabled secondary readers attending public schools in the same areas. All disabled secondary readers were performing two years or more below their expected reading level based on the Bond-Tinker formula (Ekwall, 1978), and whose verbal intelligence was in the 90 to above range as measured by the Peabody Picture Vocabulary Test (PPVT), Form A

(Dunn, 1965). The elementary developmental reader was reading on a grade level with a tolerance of plus or minus one year determining the outer limits of the range of performance. The elementary developmental readers' verbal intelligence was also in the 90 to above range as measured by the PPVT.

All passages read orally from the Standard Reading Inventory, Form B (McCracken, 1966) as well as the extended passages were read at sight and tape recorded. Comparisons were made between secondary disabled readers and elementary developmental readers in terms of specific error types: substitution, mispronunciation, words aided, insertion, and omission. Comparisons were also made between the two groups in terms of part of speech of the error type: noun, proper noun, pronoun, verb, adverb, adjective, preposition, conjunction, article, interjection, and contraction. The Mann-Whitney U was computed to analyze the data gathered on both groups of readers separately at Level I and II.

## Conclusions

Results of the study indicate that the error patterns found between disabled secondary readers and elementary developmental readers to be virtually the same with the exception of eight out of the 106 categories. In all of the significant differences reported, able elementary readers made more errors. Able elementary readers made significantly more errors in the following categories and at the following levels: Level I - mispronunciations, mispronunciation of nouns, and mispronunciation of adjectives; Level II - mispronunciations, substitution of pronouns, substitutions of adjectives, omission of articles, and omission of conjunctions.

In looking at the results in relation to the broader aspects of the

study, there appears to be little difference between the types of errors made by the disabled secondary reader and elementary developmental reader performing at the same level of reading. This lends support to the contention that reading is a developmental process and that performance is indicative of an attainment to a certain level or band of performance in reading rather than age level (Russell, 1973; Harrison, 1981; Schlieper, 1977; Madden & Pratt, 1941).

Of all the errors categorized, both the elementary developmental readers and the disabled secondary readers made the most errors in the area of substitution. This supports the previous research that the majority of errors made are substitutions (Allen, 1969; Clay, 1967; Harrison, 1981; Weber, 1968; Gates, 1947; D'Angelo and Wilson, 1979). As the passages increased in difficulty, elementary developmental readers made significantly more errors in the substitution of pronouns and adjectives.

Although an overwhelming difference is not revealed between developmental elementary readers and disabled secondary readers performing in an instructional range of 4.0-6.0, a comparison of this study with the Harrison study (1981) indicates that there is a shift in numbers and types of errors from instructional levels 2.5-3.5 and 4.0-6.0. Both studies indicate that the majority of errors are substitutions. In this study, however, the percentages of substitutions is not as great as the Harrison study. This study also indicated more omission and insertion errors than the Harrison study. This may be an indication on the part of the more mature reader to achieve fluency (Y. Goodman, 1976; Schlieper, 1977). The Harrison readers also made considerably more total errors than this study: Harrison: Level I - 2062; Johnson: Level I - 990;

Harrison: Level II - 2161; Johnson: Level II - 1204. This would also support the research that indicates that fewer word recognition errors are made as the reader progresses (Schale, 1971; Madden & Pratt, 1941).

The only major error classification that was significant at both Levels I and II were mispronunciations. Elementary developmental readers made significantly more mispronunciations than secondary disabled readers. Madden and Pratt (1941) found that all errors were limited above grade three except for mispronunciations.

Within part of speech categories the words which elementary developmental readers substituted significantly more than disabled secondary readers were pronouns and adjectives at Level II. This contradicts the findings of Harrison (1981) whose disabled readers substituted more nouns and prepositions at Level II. Elementary developmental readers had more significant errors in omission of articles and omission of conjunctions at Level II. This also contradicts the findings of Harrison whose disabled readers made a significant number of omission of conjunctions.

Drawing conclusions and correlating this research to others becomes a difficult task due to the lack of specific information reported on this particular range of reading and age levels. Speaking in general terms, the data reported in this research supports much of the current research which contends that reading is a developmental process and that as the reader grows in proficiency and maturity there is a reduction in total oral reading errors (Madden & Pratt, 1941) (Schale, 1971). In addition to this, the importance of context increases as the readers matures indicated with an increase in insertion and omissions as the reader strives for fluency (Goodman, 1976).

Implications from this study for the classroom and clinical diag-

nostic situations indicate a need to view insertions and omissions in a different context at this level of reading 4.0-6.0. Harrison (1981) suggested that in determining an instructional level that omissions and insertions not be counted due to their "inconsequential" contribution. In her study at Level I, her students made omission errors only 5% of the time and at Level II 5% of the time. At Level I, her students made insertion errors only 3% of the time and at Level II, 2%. In comparing this to the date presented in this research, students, performing in an instructional range of 4.0-6.0, made omission errors 16% of the time at Level I and 17% of the time at Level II. In the category of insertion errors, these students made this error 13% of the time at Level I and 13% of the time at Level II. The clinician may want this information not as a criteria for placement but more for an indication of maturation of reading performance (Goodman, 1967; Ilg and Ames, 1950; Goodman, 1965). In that total number of word recognition errors decreased at this level of performance, students reading in an instructional range of 4.0-6.0 should have instructional emphasis placed on using the context and comprehension skills.

## Recommendations for Future Research

The following recommendations are suggested as a result of this study of the relationship between error patterns of secondary disabled readers and elementary developmental readers in a reading range of 4.0-6.0 and the Harrison (1981) study between able and disabled elementary readers performing in a reading range of 2.5-3.5:

1. A study should be done between disabled secondary readers and elementary developmental readers in a reading range of 2.5-3.9. This

would complete the comparison of reading growth between developmental elementary readers and secondary disabled readers and allows study of reading patterns in a 2.5-3.9 reading range and 4.0-6.0 reading range.

2. It is recommended that studies be done in which analyses of the word recognition errors and usage of parts of speech or function within a sentence, e.g. subject, predicate, etc., of the textual stimulus can be made.

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